

4th

5th

6th

7th

8th

Grade  
**5**

**meap**<sup>TM</sup>  
Michigan Educational Assessment Program

# *Item Descriptors*



***MATHEMATICS***  
***FALL 2013***

**MICHIGAN STATE BOARD OF EDUCATION**  
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***NOTE: For each item listed throughout this booklet, the first statement is a summary of the Michigan Grade Level Content Expectation (GLCE) and the second statement is the descriptor for the item's stem or question.***

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Portions of this work were previously published.

Printed in the United States of America.

Students were instructed to read the directions below silently as the test administrator read them aloud.

## PART 1

### DIRECTIONS:

In this part, you will answer multiple-choice mathematics questions. Some questions will ask you to view a picture, chart, or other mathematics-related information. Use that information with what you know to answer the question. You may **NOT** use a calculator for this part of the test.

You must mark all of your answers in Part 1 of your **Answer Document** with a No. 2 pencil. You may underline, circle, or write in this test booklet to help you, but nothing marked in this test booklet will be scored. No additional paper may be used.

Mark only one answer for each question. Completely fill in the corresponding circle on your **Answer Document**. If you erase an answer, be sure to erase completely. Remember that if you skip a question in the test booklet, you need to skip the answer space for that question on the **Answer Document**. If you are not sure of an answer, mark your **best** choice.

A sample question is provided for you below.

### Sample Multiple-Choice Question:

Marty wants to put 75 CDs into cases. Each case holds exactly 8 CDs. What is the **least** number of cases that Marty will need to hold all his CDs?

- A** 8
- B** 9
- C** 10
- D** 11

For this sample question, the correct answer is **C**. Circle **C** is filled in for the sample question on your **Answer Document**.

Once you have reached the word **STOP** in your test booklet, do **NOT** go on to the next page. If you finish early, you may go back and check your work in Part 1 of the test **ONLY**. Check to make sure that you have answered every question. Do **NOT** look at any other part of the test.

NOTE: The directions for Part 2 are the same as the above instructions, but with calculators allowed.

- 1 N.ME.04.01:** Read and write numbers to 1,000,000; relate them to the quantities they represent; compare and order.

Compare whole numbers.

- A** incorrect comparison
- B** incorrect comparison
- C** incorrect comparison
- D** correct

- 2 N.ME.04.03:** Understand the magnitude of numbers up to 1,000,000; recognize the place values of numbers and the relationship of each place value to the place to its right, e.g., 1,000 is 10 hundreds.

Translate standard form of number to number of hundreds.

- A** under by a factor of 100
- B** under by a factor of 10
- C** correct
- D** over by factor of 10

- 3 N.ME.04.18:** Read, write, interpret, and compare decimals up to two decimal places.

Compare decimals.

- A** incorrect comparison
- B** incorrect comparison
- C** correct
- D** incorrect comparison

- 4 N.ME.04.20:** Understand fractions as parts of a set of objects.

Identify fractional part of a set.

- A** incorrect denominator
- B** incorrect denominator
- C** complement
- D** correct

- 5 N.ME.04.05:** List the first ten multiples of a given one-digit whole number; determine if a whole number is a multiple of a given one-digit whole number.

List multiples of a number.

- A** 2 multiples, 2 factors
- B** 3 multiples, 1 non-multiple
- C** 3 multiples, 1 non-multiple
- D** correct

- 6 N.ME.04.05:** List the first ten multiples of a given one-digit whole number; determine if a whole number is a multiple of a given one-digit whole number.

Identify number that is not a multiple of both of two given numbers.

- A** multiple of both numbers
- B** multiple of both numbers
- C** correct
- D** product of given numbers

- 7 N.FL.04.10:** Multiply fluently any whole number by a one-digit number, and a three-digit number by a two-digit number; for two-digit by one-digit multiplication, use distributive property to develop meaning for the algorithm.

Use distributive property to translate expanded form of number to product of two numbers.

- A** place value error
- B** place value error
- C** place value error
- D** correct

- 8 N.MR.04.06:** Know that some numbers including 2, 3, 5, 7, and 11 have exactly two factors (1 and the number itself) and are called prime numbers.

Identify a composite number.

- A** prime number
- B** prime number
- C** prime number
- D** correct

- 9 N.MR.04.06:** Know that some numbers including 2, 3, 5, 7, and 11 have exactly two factors (1 and the number itself) and are called prime numbers.

Identify composite number.

- A** prime
- B** correct
- C** prime
- D** prime

- 10 N.MR.04.23:** Understand the relationships among halves, fourths and eighths, and among thirds, sixths, and twelfths.

Identify equivalent fraction.

- A**  $a/b = (a + 1)/(b + 3)$
- B** correct
- C**  $a/b = (a + 8)/(b + 6)$
- D**  $a/b = (a + 6)/(b + 6)$

- 11 N.ME.04.17:** Locate tenths and hundredths on a number line.

Locate decimal in hundredths on a number line.

- A** under by 0.10
- B** correct
- C** nearest marked decimal
- D** counted right to left from nearest marked decimal

- 12 N.ME.04.09:** Multiply two-digit numbers by 2, 3, 4, and 5 using the distributive property, e.g.,  $21 \times 3 = (1 + 20) \times 3 = (1 \times 3) + (20 \times 3) = 3 + 60 = 63$ .

Use distributive property.

- A** multiplied instead of added
- B** added instead of multiplied
- C** correct
- D** added throughout

- 13 N.ME.04.18:** Read, write, interpret, and compare decimals up to two decimal places.

Translate word form of number into standard form.

- A** 0.ab = a,b00
- B** 0.ab = ab
- C** 0.ab = 0.ba
- D** correct

- 14 N.FL.04.11:** Divide numbers up to four-digits by one-digit numbers and by 10.

Divide 3-digit number by 1-digit number.

- A** incorrect quotient and remainder
- B** incorrect quotient and remainder
- C** correct
- D** correct quotient, incorrect remainder

- 15 G.GS.04.02:** Identify basic geometric shapes including isosceles, equilateral, and right triangles, and use their properties to solve problems.

Identify right triangle.

- A** not a right triangle
- B** correct
- C** not a right triangle
- D** not a right triangle

- 16 G.SR.04.03:** Identify and count the faces, edges, and vertices of basic three-dimensional geometric solids including cubes, rectangular prisms, and pyramids; describe the shape of their faces.

Identify the number of edges in 3-D shape.

- A** number of faces
- B** number of vertices
- C** correct
- D** greater than correct number of edges

- 17 G.TR.04.04:** Recognize plane figures that have line symmetry.

Identify letter with line symmetry.

- A** does not have line symmetry
- B** does not have line symmetry
- C** does not have line symmetry
- D** correct

- 18 M.TE.04.10:** Identify right angles and compare angles to right angles.

Identify the right angle on a quadrilateral.

- A** acute angle
- B** acute angle
- C** correct
- D** obtuse angle

- 19 M.UN.04.01:** Measure using common tools and select appropriate units of measure.

Measure a line segment in centimeters.

- A** location of left point of line segment
- B** correct
- C** location of right point of line segment
- D** left point + right point

- 20 N.FL.04.11:** Divide numbers up to four-digits by one-digit numbers and by 10.

Divide 4-digit number by 1-digit number.

- A** incorrect quotient and remainder
- B** incorrect quotient and remainder
- C** incorrect quotient and remainder
- D** correct

- 21 N.FL.04.08:** Add and subtract whole numbers fluently.

Add three whole numbers.

- A** 10 under
- B** correct
- C** 100 less than using 10 times amount of first addend
- D** used 10 times amount of first addend

- 22 N.FL.04.11:** Divide numbers up to four-digits by one-digit numbers and by 10.

Divide 3-digit number by 1-digit number.

- A** incorrect quotient
- B** transposed tens and ones place
- C** correct
- D** over by the amount of the divisor

- 23 N.FL.04.10:** Multiply fluently any whole number by a one-digit number, and a three-digit number by a two-digit number; for two-digit by one-digit multiplication, use distributive property to develop meaning for the algorithm.

Multiply 3-digit number by 1-digit number.

- A** incorrect product
- B** incorrect product
- C** incorrect product
- D** correct

- 24 N.FL.04.34:** Estimate the answers to calculations involving addition, subtraction, or multiplication.

Estimate product of three 2-digit numbers.

- A** underestimate
- B** one-tenth of correct estimate
- C** rounded each product down then multiplied
- D** correct

- 25 N.FL.04.10:** Multiply fluently any whole number by a one-digit number, and a three-digit number by a two-digit number; for two-digit by one-digit multiplication, use distributive property to develop meaning for the algorithm.

Multiply two 2-digit whole numbers.

- A** added
- B** correct
- C** over by 100
- D** over by factor of 10

- 26 N.ME.04.18:** Read, write, interpret, and compare decimals up to two decimal places.

Translate decimal to the word form.

- A** hundredths = ones
- B** hundredths = tenths
- C** hundredths = tenths
- D** correct

- 27 N.ME.04.20:** Understand fractions as parts of a set of objects.

Calculate the fractional part of the marbles in a bag that are a given color.

- A**  $1/\text{number of correct color}$
- B** correct
- C**  $\text{number of correct color}/\text{number of other marbles}$
- D**  $1/\text{number of different colors}$

- 28 N.ME.04.09:** Multiply two-digit numbers by 2, 3, 4, and 5 using the distributive property, e.g.,  $21 \times 3 = (1 + 20) \times 3 = (1 \times 3) + (20 \times 3) = 3 + 60 = 63$ .

Multiply 2-digit number by 1-digit number using distributive property.

- A** correct
- B** incorrect numbers and operations
- C** correct numbers but multiplied instead of added
- D** correct numbers but added instead of multiplied

- 29 N.MR.04.30:** Multiply fractions by whole numbers, using repeated addition and area or array models.

Match area model to multiplication expression.

- A**  $a \times 1/b = 1/b \times 1/b$
- B** correct
- C** number of shaded areas
- D** total number of sections

- 30 N.MR.04.06:** Know that some numbers including 2, 3, 5, 7, and 11 have exactly two factors (1 and the number itself) and are called prime numbers.

Identify the prime number.

- A** composite
- B** correct
- C** composite
- D** composite

- 31 N.MR.04.19:** Write tenths and hundredths in decimal and fraction forms, and know the decimal equivalents for halves and fourths.

Translate the decimal to a fraction.

- A**  $0.a = 1/a$
- B**  $0.a = a/2a$
- C** correct
- D**  $0.a = a/100$

- 32 N.MR.04.30:** Multiply fractions by whole numbers, using repeated addition and area or array models.

Identify equivalent value of given multiplication expression.

- A**  $a \times 1/b = 1/b \times 1/b \times 1/b \times 1/b \times 1/b \times 1/b$
- B** correct
- C**  $a \times 1/b = 1/a + 1/a + 1/a + 1/a$
- D**  $a \times 1/b = a \times a \times a \times a$

- 33 N.MR.04.29:** Find the value of an unknown in equations such as:  $1/8 + x = 5/8$  or  $3/4 - y = 1/2$ .

Find fractional subtrahend in number sentence.

- A** incorrect subtrahend
- B** difference
- C** correct
- D** incorrect subtrahend

- 34 N.MR.04.06:** Know that some numbers including 2, 3, 5, 7, and 11 have exactly two factors (1 and the number itself) and are called prime numbers.

Identify a prime number.

- A** not a prime number
- B** correct
- C** composite number
- D** composite number

- 35 N.MR.04.22:** Locate fractions with denominators of 12 or less on the number line; include mixed numbers.

Identify fraction closest to given number on number line.

- A** not the closest
- B** correct
- C** farthest
- D** not the closest

- 36 N.MR.04.25:** Write improper fractions as mixed numbers, and understand that a mixed number represents the number of "wholes" and the part of a whole remaining, e.g.,  $5/4 = 1 + 1/4 = 1 \frac{1}{4}$ .

Use circular area model to represent an improper fraction.

- A** reciprocal
- B** used total number of sections as denominator
- C** correct
- D** total number of sections/number of shaded sections

- 37 N.MR.04.25:** Write improper fractions as mixed numbers, and understand that a mixed number represents the number of “wholes” and the part of a whole remaining, e.g.,  $5/4 = 1 + 1/4 = 1 \frac{1}{4}$ .

Translate the mixed number to an improper fraction.

- A** incorrect fraction
- B** correct
- C** incorrect improper fraction
- D**  $a + b/c = ab/c$

- 38 N.MR.04.21:** Explain why equivalent fractions are equal, using models such as fraction strips or the number line, for fractions with denominators of 12 or less, or equal to 100.

Identify equivalent fraction using fraction strip.

- A** same numerator
- B** not equivalent
- C** correct
- D** not equivalent

- 39 N.MR.04.13:** Use the relationship between multiplication and division to simplify computations and check results.

Determine multiplication number sentence that can be used to check division number sentence.

- A** subtraction number sentence
- B** addition number sentence
- C** correct
- D**  $\text{divisor} \times \text{dividend} = \text{quotient}$

- 40 N.MR.04.23:** Understand the relationships among halves, fourths and eighths, and among thirds, sixths, and twelfths.

Calculate numerator in equivalent fraction.

- A** correct
- B** incorrect numerator
- C** incorrect numerator
- D** multiplied denominators

- 41 M.TE.04.05:** Carry out the following conversions from one unit of measure to a larger or smaller unit of measure: meters to centimeters, kilograms to grams, liters to milliliters, hours to minutes, minutes to seconds, years to months, weeks to days, feet to inches, ounces to pounds (using numbers that involve only simple calculations.)

Convert feet to inches.

- A** 12/number of feet
- B** 1 foot = 4 inches
- C** 1 foot = 10 inches
- D** correct

- 42 N.ME.04.16:** Know that terminating decimals represent fractions whose denominators are 10,  $10 \times 10$ ,  $10 \times 10 \times 10$ , etc., e.g., powers of 10.

Translate fraction with denominator given as product to decimal.

- A** ten times correct decimal
- B** used square of given numerator
- C** correct
- D** one-tenth of correct decimal

- 43 N.MR.04.21:** Explain why equivalent fractions are equal, using models such as fraction strips or the number line, for fractions with denominators of 12 or less, or equal to 100.

Given fraction strip, identify fraction strip with equivalent area.

- A** correct
- B** different area
- C** different area
- D** different area

- 44 N.ME.04.15:** Read and interpret decimals up to two decimal places; relate to money and place value decomposition.

Determine decimal representation of given coins.

- A** one-tenth of correct amount
- B** correct
- C** ten times correct amount
- D** one hundred times correct amount

- 45 N.MR.04.14:** Solve contextual problems involving whole number multiplication and division.

Divide in context.

- A** under by 10
- B** correct
- C** multiplied dividend by divisor
- D** multiplied dividend by one more than divisor

- 46 N.MR.04.21:** Explain why equivalent fractions are equal, using models such as fraction strips or the number line, for fractions with denominators of 12 or less, or equal to 100.

Identify fraction equivalent to shaded portion of rectangle.

- A** correct
- B** ratio of shaded to non-shaded
- C** non-shaded/total
- D** reciprocal

- 47 N.MR.04.21:** Explain why equivalent fractions are equal, using models such as fraction strips or the number line, for fractions with denominators of 12 or less, or equal to 100.

Identify equivalent fraction to one located on number line.

- A** complement
- B** correct
- C**  $a/b = (a + 1)/(b + 1)$
- D** incorrect denominator

- 48 N.ME.04.15:** Read and interpret decimals up to two decimal places; relate to money and place value decomposition.

Determine place value as fraction.

- A** the  $a$  in  $0.ab = a0$
- B** the  $a$  in  $0.ab = a$
- C** correct
- D** the  $a$  in  $0.ab = a/100$

- 49 M.TE.04.05:** Carry out the following conversions from one unit of measure to a larger or smaller unit of measure: meters to centimeters, kilograms to grams, liters to milliliters, hours to minutes, minutes to seconds, years to months, weeks to days, feet to inches, ounces to pounds (using numbers that involve only simple calculations.)

Convert ounces to pounds given 1 pound = 16 ounces.

- A** divided 16 by number of pounds
- B** 1 pound = 10 ounces
- C** correct
- D** 1 pound = 22.4 ounces

- 50 N.ME.04.16:** Know that terminating decimals represent fractions whose denominators are 10, 10 x 10, 10 x 10 x 10, etc., e.g., powers of 10.

Convert a fraction to a decimal.

- A**  $a/b0 = a.b0$
- B**  $a/b0 = 0.aa$
- C** correct
- D**  $a/b0 = 0.0a$

- 51 M.PS.04.02:** Give answers to a reasonable degree of precision in the context of a given problem.

Identify reasonable weight for given object.

- A** unreasonable - too light
- B** correct
- C** unreasonable - too heavy
- D** unreasonable - too light

- 52 D.RE.04.03:** Solve problems using data presented in tables and bar graphs, e.g., compare data represented in two bar graphs; read bar graphs showing two data sets.

Interpret data in horizontal bar graph.

- A** minimum
- B** subtrahend
- C** correct
- D** greater than difference

- 53 D.RE.04.03:** Solve problems using data presented in tables and bar graphs, e.g., compare data represented in two bar graphs; read bar graphs showing two data sets.

Interpret bar graph.

- A** correct
- B** incorrect comparison
- C** incorrect comparison
- D** incorrect comparison

- 54 D.RE.04.03:** Solve problems using data presented in tables and bar graphs, e.g., compare data represented in two bar graphs; read bar graphs showing two data sets.

Interpret bar graph to determine final score of basketball game.

- A** correct
- B** incorrect final score
- C** incorrect final score
- D** incorrect final score

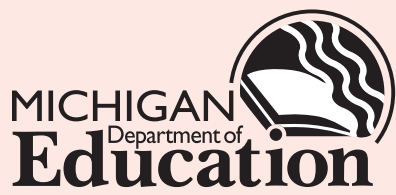
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